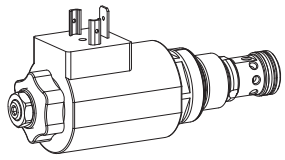
Proportional inverse pressure relief valve
Screw-in cartridge
- **Pilot operated**
- **Nominal pressure adjustable +20 % / -30 %**
- **Q_{max} = 100 l/min**
- **p_{max} = 400 bar**
- **$p_{N\ max}$ = 200 bar**

M22x1,5
ISO 7789



DESCRIPTION
Pilot operated proportional pressure relief valve with inverse function. Thread M22x1,5 and cavity according to ISO 7789. As standard versions, 4 pressure levels are available. The adjustment takes place by means of a Wandfluh proportional solenoid (VDE-standard 0580). The cartridge body made of steel is zinc coated and therefore rust-protected. The solenoid coil is made of plastic.

FUNCTION
When the operating pressure set by the proportional solenoid is reached, the main spool opens and connects the protected line with the return line to the tank. The back pressure in T (2) influences the pressure in P (1). This pilot operated proportional pressure relief valve can be adjusted very sensitively and is suitable for large volume flows and high pressures. To control the valve, Wandfluh proportional amplifiers are available (see register 1.13).

APPLICATION
The valve has its application in hydraulic systems, in which the pressure frequently has to be changed. The facility for electric remote controlling of the valve in conjunction with process control systems enables economic problem solutions with repeatable sequences. Installation of the screw-in cartridge in control blocks.
Cavity tools are available for machining the cavities in steel and aluminium (hire or purchase). Please refer to the data sheets in register 2.13.

TYPE CODE

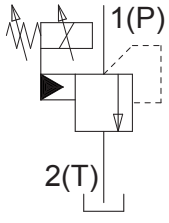
B N I PM22 - ☐ - ☐ / K ☐ - ☐ # ☐

Pressure relief valvel			
Pilot operated, inverse			
Proportional			
Screw-in cartridge M22x1,5			
Nominal pressure range p_N	63 bar	63	
	100 bar	100	
	160 bar	160	
	200 bar	200	
Nominal voltage U_N	12 VDC	G12	
	24 VDC	G24	
	without coil	X5	
Slip-on coil	Plastic housing round		
Connection execution	Connector socket EN 175301-803 / ISO 4400	D	
	Connector socketAMP Junior-Timer	J	
	Connector Deutsch DT04-2P	G	(only for G24)
Sealing material	NBR		
	FKM (Viton)	D1	
Design-Index (Subject to change			

GENERAL SPECIFICATIONS

Description	Pilot operated proportional pressure relief valve with inverse function
Construction	Screw-in cartridge for cavity to ISO 7789
Actuation	Proportional solenoid
Mounting	Screw-in thread M22x1,5
Ambient temperature	-20…+50 °C
Mounting position	any, preferably horizontal
Fastening torque	M_D = 50 Nm for screw-in cartridge M_D = 3 ± 1,2 Nm for knurled nut M_D = 9,5 Nm for hexagon nut
Weight	m = 0,45kg

SYMBOLS



ELECTRICAL SPECIFICATIONS

Construction	Proportional solenoid, wet pin push type, pressure tight	
Standard-Nominal voltage	U_N = 12 VDC	U_N = 24 VDC
Limiting current	I_G = 1250 mA	I_G = 680 mA
Relative duty factor	100 % DF (see data sheet 1.1-430)	
Protection class acc. EN 60 529	Connection version D: IP 65 J: IP 66 G: IP 67 / IP69 K acc. EN 40050	

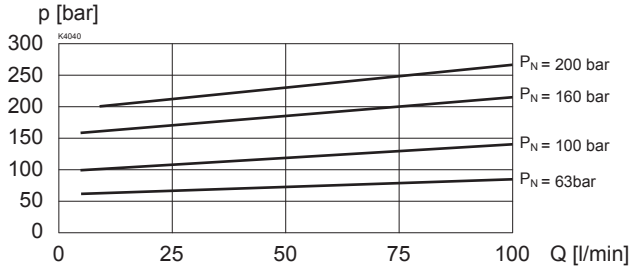
For further electrical specifications see data sheet 1.1-172

HYDRAULIC SPECIFICATIONS

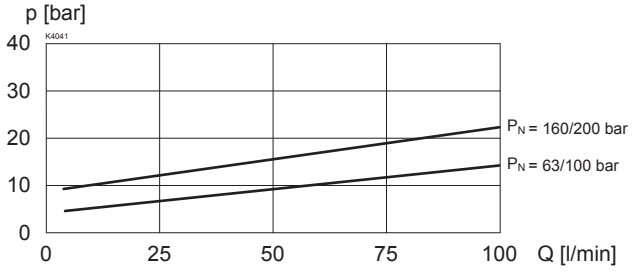
Fluid	Mineral oil, other fluid on request
Contamination efficiency	ISO 4406:1999, class 18/16/13 (Required filtration grade ß 6…10 ≥ 75) see data sheet 1.0-50/2
Viscosity range	12 mm²/s…320 mm²/s
Fluid temperature	-20…+70 °C
Peak pressure	p_{max} = 400 bar p_{Tmax} = 50 bar
Nominal pressure ranges	p_N = 63, 100 bar, 160 bar, 200 bar
Volume flow	Q = 5…100 l/min with p_N = 63 / 100 / 160 bar Q = 10…100 l/min with p_N = 200 bar
Leakage volume flow	see characteristics
Hysteresis	≤ 5% ∗ ∗ at optimal dither signal

CHARACTERISTICS Oil viscosity υ = 30 mm²/s

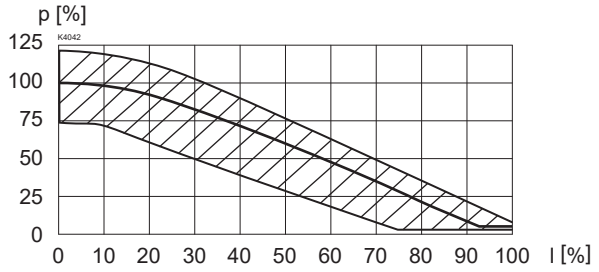
p = f (Q) Pressure volume flow characteristics (Maximum adjustable pressure)



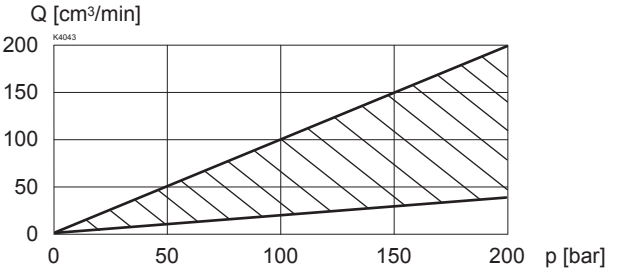
p= f (Q) Pressure volume flow characteristics (Minimum adjustable pressure)



p = f (I) Pressure adjustment characteristics (Q = 5 l/min)



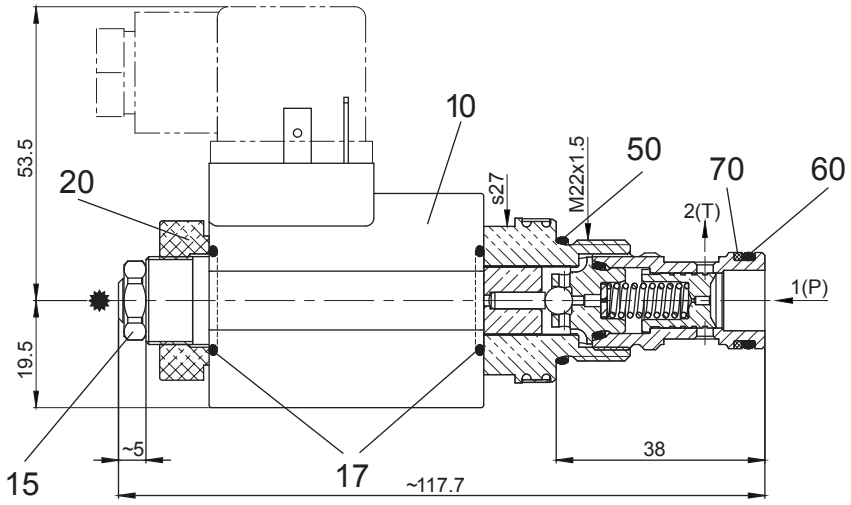
Q_L = f (p) Leakage volume flow characteristics



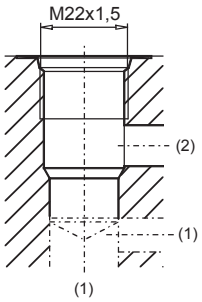
Adjustable range of nomial pressure, adjusted with set screw..

DIMENSIONS / SECTIONAL DRAWINGS

✹ Adjusting screw for setting the nominal pressure (+20 % / -30 %)



Cavity drawing according to
ISO 7789–22–02–0–98



For detailed cavity drawing
and cavity tools
see data sheet 2.13-1003

Dimensions of the other connection versions see data sheet 1.1-172

Position	Article	Description
10		EN 175301
	206.2301	solenoid coil KD35/16-G24
	206.2300	solenoid coil KD35/16-G12
		Junior-Timer
	206.2303	solenoid coil KJ35/16-G24
	206.2302	solenoid coil KJ35/16-G12
		Deutsch
	206.2304	solenoid coil KG35/16-G24
15	153.1402	Hexagon nut M8x1
17	160.1156	O-ring ID 15,60 x1,78 (NBR)
20	154.2600	Knurled nut
50	160.2188	O-ring ID 18,77 x 1,78 (NBR)
	160.6188	O-ring ID 18,77 x 1,78 (FKM)
60	160.2140	O-ring ID 14,00 x 1,78 (NBR)
	160.6141	O-ring ID 14,00 x 1,78 (FKM)
70	049.3177	Backup ring RD 14,6 x 17,5 x 1,4

ACCESSORIES

Flange-/sandwich plate NG4-Mini	Data sheet 2.3-720
Flange-/sandwich plate NG6	Data sheet 2.3-740
Flange-/sandwich plate NG10	Data sheet 2.3-760
Line mount body	Data sheet 2.9-200
Proportional amplifier	Register 1.13
Mating connector EN 175301-803	Article no. 219.2002

Technical explanation see data sheet 1.0-100